

Review Comments
Addendum 4 to the Expanded Preliminary Assessment and Source
Control Evaluation
2015 Stormwater Storm Drain Sampling Results
BNSF Willbridge Switching Yard
Portland, Oregon
Dated August 2015

Submitted January 13, 2016

Following are the United States Environmental Protection Agency's (EPA) comments on the August 2015 document entitled, Addendum 4 to the Expanded Preliminary Assessment and Source Control Evaluation, 2015 Stormwater Storm Drain Sampling Results, BNSF Willbridge Switching Yard, Portland, Oregon (Addendum 4) prepared by Integral Consulting Inc. The BNSF Railway Company's Willbridge Switching Yard (Willbridge Yard) (ECSI# 3395) is located at River Mile 8.2 east (RM8.2E). The Willbridge Yard is approximately 2,000 feet from the riverbank.

EPA understands the objective of the sampling and evaluation activities were to determine whether the stormwater pathway, which includes groundwater infiltration into storm drain pipes, is a current or reasonably likely future contamination source to the Willamette River. The source control evaluation (SCE) was performed pursuant to the request of the Oregon Department of Environmental Quality (DEQ) as stated in letters to the BNSF dated July 28, 2014 and March 2015.

General Comments

1. EPA recommends that DEQ consider requiring additional stormwater sampling to support the SCE. The 2015 stormwater sampling did not comply with the Portland Harbor Joint Source Control Strategy (JSCS) guidelines (refer to Specific Comment 3) and, therefore, may not be sufficient for determining whether the stormwater pathway is a current or future contamination source to the Willamette River.
2. The Site Status Summary table below summarizes the information presented in Addendum 4 and EPA's recommendations for the Willbridge Yard. Based on current information, EPA cannot determine whether source control measures (SCMs) are effective, and whether the stormwater pathway is a current or reasonably likely future contamination source to the Willamette River.

EPA Site Status Summary – Willbridge Yard

Question	Answer	Description
Are source control measures (SCMs) being implemented?	No	There are no SCMs described in the text. Refer to Specific Comment #1 below.
Are there JSCS SLV exceedances?	Yes	Total arsenic: Samples SW04, SW05, SW06, SW07, SW08, SW09, SW10, SW11, SW12, SW13 Total silver: Sample SW04 Polycyclic Aromatic Hydrocarbons (PAHs): samples SW09 and SW13 Bis(2-ethylhexyl)phthalate: Sample SW04
Are there stormwater PRG exceedances?	NA	No comparison to stormwater Portland Harbor Preliminary Remediation Goals (PRGs) was presented
Are pollutant concentrations typical of Portland Harbor industrial sites (e.g. below the knee of the curve)?	Yes	All pollutant concentrations presented are at or below the knee of the curve. Note: charts only presented for analytes with JSCS SLV exceedances (see above).
Are stormwater COCs from this site the same as those defined for the associated SDU?	No	Stormwater from the site discharges to City Outfall OF-19, which discharges to Portland Harbor sediment decision unit (SDU) RM9W. SDU RM9W has the following contaminants of concern (COCs): total PCBs, PeCCD, and TCDD. Total PCBs are not stormwater COCs at the Willbridge Yard. Stormwater samples from the Willbridge Yard were not analyzed for PeCCD, TCDD, or other dioxins; therefore, it is unknown whether these are COCs.
Do sampled stormwater events meet JSCS criteria?	No	Refer to Specific Comment #3 below.
Is further stormwater data collection recommended?	Yes	Refer to Specific Comments #3 and #6 below.
Are additional SCMs recommended?	To be determined	Contingent upon results of additional stormwater quality data.

Specific Comments

1. Background: In accordance with JSCS guidance, a description of the SCMs and best management practices (BMPs) that have been implemented at Willbridge Yard, if any, should be provided in Addendum 4. These descriptions should include when the SCMs and BMPs were implemented, any previous effectiveness monitoring, and ongoing maintenance activities.
2. 2015 Stormwater Sampling Results:
 - a. The results of stormwater monitoring should also be compared to the PRGs of remedial action objectives (RAOs) 3 and 7, which provide remedial objectives related to surface water exposures.
 - b. Stormwater from the site discharges to City Outfall OF-19, which is located within SDU RM9W. The COCs associated with this SDU include PCBs, PeCDD, and TCDD. Accordingly, PeCDD and TCDD should be included with the list of analytes for stormwater samples in any future sampling.
3. Stormwater Event Preparation and Sampling
 - a. The JSCS guidance (Section D.2) states that a minimum of four storm events be sampled for screening purposes. Of these four stormwater sampling events, the JSCS recommends that two be representative of “first flush” conditions (i.e., within the first 30 minutes of stormwater discharge) and the other two events should be collected within the first three hours of stormwater discharge.
 - b. From the hydrograph in Figure 3 and the description of stormwater sampling in the text, it appears that stormwater sampling did not occur within the first three hours of stormwater discharge. Pollutant concentrations can vary significantly over the course of a stormwater runoff event and the data collected may not be representative of typical stormwater discharge.
 - c. For more appropriate comparison to downstream water quality, stormwater samples should be collected from catch basin CB-44 while water is flowing, if possible (as opposed to sampling from pooled water). Additionally, a sufficient quantity of water should be collected to allow analysis of all analytes listed in this section.
 - d. The timing of first runoff and timing of sample collection should be documented in the report to evaluate the representativeness of first flush conditions and to determine adherence to JSCS guidance to collect samples within the first three hours of discharge.
4. Investigation Results and Evaluation
 - a. The presentation of analytical results should include laboratory detection limits, as stated in section D.7.1.1 of the JSCS. These should be provided in Table 2 to enable a comparison of detection limits to JSCS SLVs and the PRGs.
 - b. Flow Rates: The method for obtaining flow rates and accuracy of the measurements should be clarified. Table 1 includes a column for flow rates with flow velocities listed

with accuracy in the tenths of feet/second; however, the section entitled *Storm Event Preparation and Sampling* states that “high flow volumes prevented accurate measurement.” The flow velocities listed in Table 1 provide little meaningful information without quantifying actual discharge rates and the accuracy of the measurement.

5. Catch Basin CB-44 Drainage

- a. EPA recommends sampling of solids from CB-44 to provide an additional line of evidence for evaluating stormwater runoff. Storm drain solids were previously sampled from CB-44 in November 2009, but the document states that the catch basin was cleaned out with a vactor truck in 2010 and the sediment has since re-accumulated in the catch basin. Analysis of this sediment would provide additional information on whether contaminants are being transported from the Willbridge Yard to CB-44.
- b. This section states that granular material in the CB-44 outlet prevents solids from exiting the catch basin. Data to support this statement should be provided in Addendum 4.

6. Potential Groundwater Infiltration into the non-BNSF Stormwater Pipes: The conclusions that groundwater is not impacted at the Willbridge Yard and that contaminant migrations via groundwater infiltration into the stormwater pipes is not occurring is based on information presented in Addendum 1 -3. EPA has not reviewed these documents and cannot comment on the groundwater pathway at the Willbridge Yard until these documents have been reviewed.

7. Summary and Next Steps

- a. Addendum 4 states that sampling of CB-44 in March 2015 effectively demonstrates that Willbridge Yard is not adversely affecting stormwater or receptors in the Willamette River. However, as discussed in Specific Comment #3, the stormwater sampling event did not meet all JSCS criteria and results may not be adequately representative of stormwater discharges from the site. Additional stormwater sampling is needed to adequately characterize stormwater discharges.
- b. One line of evidence used to indicate that Willbridge Yard is not a contamination source is the similar contaminant concentrations in stormwater upstream and downstream from Willbridge Yard. A figure or table that summarizes the data used to arrive at this conclusion should be provided.